



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/422,539	10/21/1999	DING-KAI CHEN	10981786-1	5676

22879 7590 11/20/2003

HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER

KENDALL, CHUCK O

ART UNIT	PAPER NUMBER
----------	--------------

2122

DATE MAILED: 11/20/2003

16

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/422,539

Applicant(s)

CHEN ET AL.

Examiner

Chuck O Kendall

Art Unit

2122

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Remarks

1. This Office Action is the response to the communication received on September 25, 2003 for amendment under 37 CFR § 1.114. Reconsideration of the instant application is requested by Applicant. All such supporting documentation has been placed of record in the file. Applicant has added claims 46 - 48. Claims 23 - 48 are pending.
 - a. Previously claims 23 - 45, were rejected under 35 U.S.C. § 103(a) as being unpatentable over Hayashi USPN 5,828,886 of in view of Saulsbury et al. USPN 6,314,510 and further in view of Adl -Tabatabai et al. USPN 6,317,869 B1.
 - b. Applicant has filed an RCE, amending *atleast all the independent* claims and dependent claims 27 and 29 inclusively.
 - c. In this action claims Examiner has withdrawn Saulsbury USPN 6,314,510 and added, Grove USPN 5,857,103 as necessitated by the amendment.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States

Art Unit: 2122

only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 23,30,36 and 40 are rejected under 35 U.S.C. 102(e) as being anticipated by Grove USPN 5,857,103.

Regarding claims 23 & 40, a method (Col. 14 line 40 to Col. 16 line 40), a system (Col. 16 line 38 to Col. 17 line 17), for passing information to a post-compile-time software application comprising the steps of:

compiling a plurality of blocks of code including, finding one or more unused bits in an instruction in one of the plurality of blocks of, and using the one or more unused bits to encode information (Grove, Col. 10 lines 10-15, also figure 6);

communicating the information to the post-compile-time software application (Grove, 9:58-60, refer to LUT/ look up table, which is used by compiler, also see 13:20-35 for LUT and bit pattern).

Regarding claims 30 & 36, Examiner is applying the same rationale to claim, which are the systems version of the method claim as discussed in claim 23 above.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 24-29, 31-35, 37-39, 41 - 48, rejected under 35 U.S.C. 103(a) as being unpatentable over Grove as applied in claim 23 and in view of Hayashi USPN 5,828,886.

Regarding claims 24 & 41, Grove discloses all the claimed limitations as applied in claim 23 above. Grove doesn't explicitly disclose, wherein the information identifies whether certain registers are live. However, Hayashi does disclose this feature

Art Unit: 2122

(Hayashi, 5:45-50). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to Grove and Hayashi because, identifying the status or contents of registers make allocating memory and resources more efficient.

Regarding claims 25 & 42, the method of claim 23, wherein the post-compile-time software application comprises a dynamic optimizer (Grove, fig 8, item #808).

Regarding claim 26 & 43, Grove discloses all the claimed limitations as applied in claim 23 above. Grove doesn't explicitly disclose wherein the instruction is a no-operation (NOP) instruction. However Hayashi does disclose this feature (Hayashi, see Fig 22, for NOP instruction, and live register within block of code). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to Grove and Hayashi because, using no op instructions in registers makes memory management more efficient.

Regarding claims 27 & 44, the method of claim 23, wherein the information is used by the post-compile-time software application to determine whether certain registers are live (Hayashi, 2:23-27, see live objects and Garbage collection).

Regarding claim 28 & 45, the method of claim 23, wherein the information is encoded as a bit vector (Hayashi, 2:23-30, see marking set bits).

Regarding claim 29 the method of claim 23, wherein the step of using the one or more unused bits to pass information to the post-compile-time software application comprises:

- determining which of a plurality of registers are live in said one of the plurality of blocks of code (Hayashi, 5:45-50);

- creating within the instruction a register-usage bit-vector having a plurality of register-usage bits; and [Hayashi, 5:40-55, see register usage field and setting bit vectors, see Kill or use as indicated by 1 or 0 for bit vectors in the register information management table as cited from prior art]

- setting one of the plurality of register-usage bits for each one of the plurality of registers that are live [Hayashi, 5:40-55].

Regarding claims 31 & 37, Examiner is applying the same rationale to claim, which are the systems version of the method claim as discussed in claim 24 above.

Regarding claims 32 & 38, Examiner is applying the same rationale to claim, which are the systems version of the method claim as discussed in claim 25 above.

Regarding claims 33 & 39, Examiner is applying the same rationale to claim, which are the system versions of the method claim as discussed in claim 26 above.

Regarding claims 34, Examiner is applying the same rationale to claim, which is the system version of the method claim as discussed in claim 27 above.

Regarding claim 35, Examiner is applying the same rationale to claim, which is the system version of the method claim as discussed in claim 28 above.

Regarding claim 37, see claim 24 for reasoning.

Regarding claim 38, see claim 25 for reasoning.

Regarding claim 39, see claim 26 for reasoning.

Response to Arguments

6. Applicant's arguments filed 12/20/2002 have been fully considered but are moot in view of the new ground(s) of rejection.

Correspondence Information

7. Any inquires concerning this communication or earlier communications from the examiner should be directed to Chuck O. Kendall who may be reached via telephone at (703) 308-6608. The examiner can normally be reached Monday through Friday between 8:00 A.M. and 5:00 P.M. est.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Dam *can be* reached at (703) 305-4552.

Application/Control Number: 09/422,539
Art Unit: 2122

Page 6

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

For facsimile (fax) send to central FAX number 703-872-9306 and 703-7467240 draft.

Chuck D. Kendall

Software Engineer Patent Examiner



JOHN CHAVIS
PATENT EXAMINER
ART UNIT 2124